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AUTHOR Richardson, John G.
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ABSTRACT

Three groups were surveyed to determine the preferred modes of learning of persons directly associated with cooperative extension education in North Carolina. The modes of learning stated on the questionnaires were doing, touching/feeling, smelling, tasting, seeing, hearing, and discussing. Three groups completed the questionnaire: targeted clientele from 11 counties (n=77); new extension workers (n=31); and experienced extension agents enrolled in a graduate education class relating to educational program delivery (n=16). Results demonstrated that targeted extension audiences as well as agents themselves had distinct preferences for certain specific modes of learning. The studies showed very similar preferences by extension clientele as well as agents. The learning modes most strongly preferred as indicated in these studies were doing, seeing, and discussing. (YLB)

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# SELECTING PROGRAM DELIVERY METHODS EFFECTIVELY

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John G. Richardson
North Carolina Cooperative Extension Service
North Carolina State University

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# ABSTRACT

Title: Selecting Program Delivery Methods Effectively

Author: John G. Richardson, Extension Specialist Educational Programs, North Carolina State University

Research results in North Carolina have demonstrated conclusively that targeted Extension audiences as well as agents themselves have distinct preferences for certain specific modes of learning. These studies have shown very similar preferences by Extension clientele as well as agents. The learning modes most strongly preferred as indicated in these studies are *"doing"*, *"seeing"*, and *"discussing"*.

By using this information, the Extension educator can select among a wide variety of program delivery methods to most effectively provide opportunities for learners to have the opportunity to receive information in ways which they can learn most effectively. Yet, while such a wide variety of methods are available, there are some methods which may be unpopular with adult audiences. Study of targeted audiences identified these unpopular delivery methods. With the knowledge that agents and clientele hold similar learning preferences, awareness of the preferred program delivery methods as well as those methods not preferred can be most useful in developing effective program delivery systems.

# SELECTING PROGRAM DELIVERY METHODS EFFECTIVELY

**John G. Richardson**
**North Carolina State University**

In the development and implementation of nonformal educational programs, the educator has a wide latitude in choosing specific means for delivering the program to the learners. Many of these delivery methods such as demonstrations and personal visits have been used for many years in reaching targeted clientele. Other methods such as computer software and videocassette have more recently gained in acceptance by users of nonformal educational programs (Richardson, 1993).

The presently available delivery methods allow the educator to have considerable latitude in providing information through developing an effective program delivery system for educational programs. Such a delivery system takes into account the needs of the learners, and includes sufficient educational inputs to provide the learner with a lasting educational experience.

In providing learners with adequate educational input, the educator should clearly recognize that adults have preferences in the way they receive information and in the ways they learn. Mustian, et. al., (1988) listed seven means by which adults receive information. Those means are Print, Aural, Interactive, Visual, Haptic, Kinesthetic, and Olfactory. From a contextual point of view, McCreary, (Blackburn, 1989) listed four schools of thought regarding how people learn. These schools include Behaviorist, Cognitivist, Humanist, and Social. These schools can be summarized as psychomotor, mental concepts/knowledge growth and development, psychological, and socially oriented. In the process of selecting appropriate delivery methods, these factors relating to the means of learning as well as the context must be considered in order to adequately facilitate the learning process.

## Learning Research

In order to determine the preferred mode(s) of learning of persons directly associated with Cooperative Extension education in North Carolina, numerous groups have been studied. These groups include new and experienced Extension agents, as well as targeted Extension clientele. All information was obtained via questionnaire administered directly to the individuals surveyed. In identifying specific learning preferences, words were used which were considered to be easily

recognizable and understood. Therefore, the modes of learning that were stated on the questionnaires were Doing, Touching/feeling, Smelling, Tasting, Seeing, Hearing, and Discussing. Three separate groups were administered the questionnaire. One group was targeted clientele, another was new Extension workers, and another was experienced Extension agents enrolled in a graduate education class relating to educational program delivery. Each study and its results follow:

**STUDY 1 (Clientele Study)**

Specifically targeted clientele from eleven North Carolina counties were involved in this study. Extension agents from each of the eleven counties selected an applicable educational program for their county and developed program objectives as well as a list of targeted clientele to receive the information. The educational programs ranged broadly from community leadership development, 4-H in-school enrichment programs, to Christmas tree production. Seven persons in each of the eleven counties were randomly selected from each county list, and were interviewed by the Extension agents in those counties. Even though the counties represented the locations of the agent's job assignments, the broad geographical spread represented the mountain, central, and coastal regions of the state.

The findings of this study, as shown in Table 1, indicate that clientele hold a strong preference for *"doing"* as a means of learning.

**Table 1** **Preferred Learning Modes of North Carolina Cooperative Extension Clientele N=77**

| Learning Method | N | % |
|---|---|---|
| Hearing | 3 | 3.9 |
| Touching-feeling | 1 | 1.3 |
| Doing | 54 | 70.1 |
| Discussing | 5 | 6.5 |
| Seeing | 14 | 18.2 |
| Tasting | 0 | 0 |
| Smelling | 0 | 0 |
| Total | 77 | 100.0 |

The clientele also indicated that combinations of modes of learning are preferred in the learning process, as shown in Table 2. When the combinations were summarized, 57 or 74% of clientele preferred combinations that include *"doing"*. Second most popular combination was *"seeing"*, which was named by 50 clientele. About one-third (35.1%) of the clientele also preferred some opportunity to *"discuss"* information that has been presented. The combinations that included some combination of *"doing"*, *"seeing"*, and *"discussing"* were considerably more popular than any of the other learning modes.

**Table 2 Preferred Learning Mode Combinations of N.C. Cooperative Extension Clientele N=77**

| Preferred Combinations | N | % |
|---|---|---|
| Seeing/Doing | 15 | 19.5 |
| Hearing/Seeing/Doing | 9 | 11.7 |
| Discussing/Doing | 7 | 9.1 |
| Discussing/Seeing/Doing | 7 | 9.1 |
| Discussing/Seeing/Hearing/Doing | 4 | 5.1 |
| Hearing/Seeing/Discussing | 3 | 3.9 |
| Hearing/Seeing/Feeling/Doing/Tasting/Smelling | 3 | 3.9 |
| Performing | 3 | 3.9 |
| Hearing/Seeing | 2 | 2.5 |
| Touching-feeling/Seeing/Doing | 2 | 2.5 |
| Touching-feeling/Doing/Hearing | 2 | 2.5 |
| Discussing/Seeing | 2 | 2.5 |
| Hearing/Doing/Discussing | 2 | 2.5 |
| Hearing/Doing | 1 | 1.2 |
| Seeing/Touching/Hearing | 1 | 1.2 |
| Doing/Discussing/Touching-feeling | 1 | 1.2 |
| Seeing/Tasting/Touching/Hearing | 1 | 1.2 |
| Touching-feeling/Doing/Hearing/Seeing | 1 | 1.2 |
| Seeing/Tasting/Touching/Hearing | 1 | 1.2 |
| Seeing | 1 | 1.2 |
| Discussing | 1 | 1.2 |
| No combination preferences expressed | 9 | 11.7 |
| Total | 77 | 100.0 |

When clientele were asked why they preferred a combination of learning modes, they made statements that generally reflect that combinations enhance learning, such as "combinations help the learning process"; "learning is easier and faster"; "helps for longer retention", and "they reinforce each other".

**STUDY 2 (New Extension field faculty)**

All North Carolina field faculty who were employed during 1992 and were involved in orientation training were given a questionnaire that had the same questions relating to learning

preferences as did the clientele survey. The responses from the agents, as shown in Table 3 indicated a strong preference for *"doing"* (80.7%).

**Table 3 Preferred Learning Modes of New Cooperative Extension Agents In North Carolina N=31**

| Learning Method | N | % |
|---|---|---|
| Hearing | 0 | 0 |
| Touching-feeling | 0 | 0 |
| Doing | 25 | 80.7 |
| Discussing | 1 | 3.2 |
| Seeing | 5 | 16.1 |
| Tasting | 0 | 0 |
| Smelling | 0 | 0 |
| Total | 31 | 100.0% |

As shown in Table 4, the questions relating to preferred learning combinations indicates their responses were similar to those of the clientele except that the agents preferred *"doing"* (100%); *"seeing"* (96.3%) and *"discussing"* (74.1%) even more frequently than clientele.

**Table 4 Number of Times a Learning Mode Was Identified in a Preferred Combination With Other Modes by New North Carolina Cooperative Extension Agents***

| Method | N | % |
|---|---|---|
| Doing | 27 | 100.0 |
| Seeing | 26 | 96.3 |
| Discussing | 20 | 74.1 |
| Hearing | 10 | 37.0 |
| Feeling | 3 | 11.1 |
| Tasting | 2 | 7.4 |
| Smelling | 2 | 7.4 |

* Ex: 100% prefer *"doing"* in a set of learning methods available, but only 37% prefer *"hearing"* in a set of methods.

**STUDY 3 (Extension agents enrolled in graduate course)**

During the Fall semester of 1993, Extension agents in western North Carolina who were enrolled in a graduate level course entitled "Extension Program Delivery Systems" were given the same questionnaire as the group of new field faculty members. The tenure of individuals in this group generally ranged from five to twenty years of experience as an Extension agent. As indicated in Table 5, a pattern nearly identical to that of the clientele and newer agents

emerged. Among this group of sixteen agents, *"doing"* (62.5%) was the most preferred learning mode, while *"seeing"* (25.0%) was again, second in preference.

**Table 5 Single Most Preferred Mode of Learning as Identified by Extension Agents Enrolled in Extension Program Delivery Systems Course, 1993 N=16**

| Learning Mode | N | % |
|---|---|---|
| Hearing | 1 | 6.2 |
| Smelling | 0 | 0 |
| Touching/Feeling | 0 | 0 |
| Tasting | 0 | 0 |
| Discussing | 1 | 6.2 |
| Seeing | 4 | 25.0 |
| Doing | 10 | 62.6 |
| Total | 16 | 100.0 |

When combinations of modes were considered, *"doing"*, *"seeing"*, and *"discussing"* again were ranked highest, as shown in Table 6.

**Table 6 Learning Mode Preferred in Combination With Other Modes as Identified by Extension Agents Enrolled in Extension Program Delivery Systems Course, 1993.**

| Learning Mode | N | % |
|---|---|---|
| Seeing | 13 | 81.2 |
| Doing | 13 | 81.2 |
| Discussing | 9 | 56.2 |
| Hearing | 6 | 37.5 |
| Touching/Feeling | 4 | 25.0 |

## A LEARNING SYSTEM

The findings of these studies consistently support the writings of Tyler (1971), Dewey (1938), Boone (1985) and others, that a planned system of nonformal education must be based on the needs and wishes of the learner and information provided in a sufficient manner or system whereby the desired learning occurs. Figure 1 is a learning system model that has been developed by this author to provide a step by step process for developing a learning system and a compatible program delivery system.

Figure 1

# EXTENSION EDUCATION LEARNING SYSTEM

By utilizing this model as a guide, a learning system can be structured which addresses the needs of a targeted audience and provides a program delivery design for accomplishing educational objectives. In this program delivery design, appropriate program delivery methods are chosen as needed inputs to accomplish educational change among learners. Thus, in the selection of inputs for individual educational objectives, inputs that provide opportunities to *"see"*, *"do"*, and *"discuss"* can be achieved through a designed delivery system that meets the "Experience", "Reinforcement", and "Integration" components of a program delivery system. As appropriate results are gained through the educational process, adjustments occur in the learner, and adjustments will likely need to occur in the program delivery inputs that are provided in progressive educational efforts.

In providing opportunities to satisfy the preferred learning modes of program participants as well as to accomplish learning objectives, seventy-two program delivery methods in Figure 2 placed under headings which are perhaps the most applicable use within a program delivery system. Due to the wide utility of some delivery methods, such methods may be used equally effective in other components of the program delivery system. For example, a videocassette may provide all aspects of a delivery system that includes opportunities for experience, reinforcement of the learner, and discussion which can assist the learner in integrating the new information. Actual experience of the educator, coupled with knowledge of learners and applicable research findings regarding learning preferences and preferred delivery methods, should also be used as guides in selection of delivery methods.

**Figure 2** **PROGRAM DELIVERY METHODS IN EXTENSION EDUCATION**

**Experiential**

| | | | |
|---|---|---|---|
| audio cassette | video compact disk | tour | game |
| video cassette | method demonstration | field day | skit |
| interactive video | result demonstration | workshop | networking |
| audio compact disk | on-farm test | data analysis/results | roleplay |
| | | | case study |

**Reinforcement**

| | | | |
|---|---|---|---|
| fact sheet | magazine article | book | newsletter |
| notebook | journal article | fax | letter |
| leaflet/flyer | speciality publication article | computer software | home study kit |
| bulletin/pamphlet | poster | | |

**Integrative**

| | | | |
|---|---|---|---|
| conference | symposium | brainstorming | telephone |
| convention | colloquy | audience reaction team | computer network |
| seminar | dialogue | listening team | satellite conferencing |
| panel | institute | interview | personal visit |
| forum | buzz group | teleconferencing | office visit |
| meeting | discussion group | | |

**Other Methods**

| | | | | |
|---|---|---|---|---|
| television | movie/film | bulletin board | lecture | puppet |
| radio | film strip | show | speech | comics |
| newspaper | slide-tape | fair | teletip | novelty |
| cable television | photograph | exhibit | church bulletin | |

## PROGRAM DELIVERY RESEARCH

From the perspective of program delivery preferences, in the clientele study mentioned previously in this paper, information was obtained which not only identified their preferred modes of learning, but also identified the program delivery methods(inputs) preferences of these Extension clientele. Information relating to the delivery methods preferences of the clientele was reported in a separate paper (Richardson, 1993). The ten delivery methods most preferred were personal visit, meeting, newsletter, method demonstration, workshop, videocassette, bulletin/pamphlet, field day, on-farm test, and seminar.

### Methods of Little Interest

In the clientele research, while their preferences for certain delivery methods were identified, another objective was to obtain information as to any methods which the clientele held little interest in receiving information through. Those methods which were identified by five or more percent of clientele are shown in Table 7.

**Table 7 Program Delivery Methods Identified By Clientele To Be Of Little Interest Or Value For Receiving Information From Extension**

| Method | N | % Clientele Identifying Method |
|---|---|---|
| Puppet | 35 | 45.5 |
| Satellite conferencing | 32 | 41.6 |
| Fax | 26 | 33.8 |
| Skit | 25 | 32.5 |
| Computer software | 23 | 29.9 |
| Computer network | 18 | 23.4 |
| Game | 16 | 20.8 |
| Role play | 15 | 19.5 |
| Church bulletin | 14 | 18.2 |
| Teleconferencing | 13 | 16.9 |
| Show | 12 | 15.6 |
| Poster | 11 | 14.3 |
| Interactive video | 10 | 13.0 |
| Cable television | 10 | 13.0 |
| Fair | 9 | 11.7 |
| Bulletin board | 9 | 11.7 |
| Novelty | 9 | 11.7 |
| Lecture | 8 | 10.4 |
| Audience reaction team | 8 | 10.4 |
| Exhibit | 6 | 7.8 |
| Convention | 5 | 6.5 |

Table 7 (continued)

| Method | N | % Clientele Identifying Method |
|---|---|---|
| Forum | 5 | 6.5 |
| On-farm test | 5 | 6.5 |
| Home study kit | 5 | 6.5 |
| Bulletin/pamphlet | 5 | 6.5 |
| Case study | 5 | 6.5 |
| Brainstorming | 5 | 6.5 |
| Film-strip | 5 | 6.5 |
| Speech | 4 | 5.2 |
| Radio | 4 | 5.2 |
| Book | 4 | 5.2 |
| Interview | 4 | 5.2 |
| Networking | 4 | 5.2 |
| Movie/film | 4 | 5.2 |
| Teletip | 4 | 5.2 |
| Audio cassette | 4 | 5.2 |

## Methods Clientele Never Expect to Use

As a follow-up question to clientele identifying delivery methods in which they hold little interest, they were asked if there were any methods which they never expected to use to receive information from Extension. The methods that are never expected to be used, that were named by five or more percent of the clientele, are indicated in Table 8.

**Table 8 Delivery Methods That Clientele Never Expect To Use To Receive Information From Extension**

| Method | N | % Clientele Identifying Method |
|---|---|---|
| Puppet | 26 | 33.8 |
| Fax | 18 | 23.4 |
| Satellite conferencing | 17 | 22.1 |
| Skit | 15 | 19.5 |
| Computer software | 14 | 18.2 |
| Church bulletin | 13 | 16.9 |
| Game | 10 | 13.0 |
| Cable television | 10 | 13.0 |
| Teleconferencing | 9 | 11.7 |
| Computer network | 7 | 9.1 |
| Role play | 5 | 6.5 |
| Show | 5 | 6.5 |
| Poster | 5 | 6.5 |
| Exhibit | 4 | 5.2 |
| Bulletin board | 4 | 5.2 |
| Convention | 4 | 5.2 |
| Fair | 4 | 5.2 |

When asked why they never expect to use a certain method, reasons given usually focused on unavailability such as cable television, or simply that some methods are seen by some adults as more appropriate for use with children. A brief listing of the variety of reasons for never expecting to use an individual delivery method are as follows:

**Puppet** - Considered childish and not applicable for adults, unappealing, inappropriate, silly, don't like, and could not learn anything.

**Fax** - Does not own machine, unavailable, and do not need.

**Satellite conferencing** - Not accessible, unavailable, no equipment.

**Skit** - Silly, a child's game, not relevant, do not like, need facts, not playing.

**Computer software** - Do not own a computer, not interested in owning computer.

**Church bulletin** - Inappropriate, not everyone goes to church, do not expect to get information through this means.

**Game** - For children, silly, not appropriate, I am no longer a child.

**Cable television** - Not available.

**Teleconferencing** - Not a realistic source, costly, and no need for information that fast.

**Computer network** - Not available, no machine, no way to use.

## Methods Clientele Consider Out-of-Date or Obsolete

In a later study involving 112 clientele conducted during the Fall of 1993, which focused primarily on clientele located in western North Carolina, the randomly selected individuals from targeted Extension audiences were asked if they felt any delivery methods used by Extension are out-of-date or obsolete. Their responses are indicated in Table 9. Few methods were frequently identified, and the primary reason stated for identifying those was that newer technologies are available which can deliver information more easily and effectively.

**Table 9 Percentage of Clientele who Identified Specific Extension Program Delivery Methods as Out of Date and Likely to Become Obsolete. N=112**

| Method | N | % |
|---|---|---|
| Film strip | 20 | 17.9 |
| Slide-tape | 16 | 14.3 |
| Movie/film | 8 | 7.1 |
| Bulletin board | 5 | 4.4 |
| Puppet | 5 | 4.4 |
| Role play | 5 | 4.4 |
| Skit | 5 | 4.4 |

**Table 9 (continued)**

| Method | N | % |
|---|---|---|
| Comics | 4 | 3.6 |
| Personal visit | 4 | 3.6 |
| Photograph | 4 | 3.6 |
| Novelty | 3 | 2.7 |
| Home study kit | 2 | 2.7 |
| Audiocassette | 2 | 2.7 |
| Game | 2 | 2.7 |
| Book | 2 | 2.7 |
| Radio | 2 | 2.7 |
| Lecture | 2 | 2.7 |
| Speech | 2 | 2.7 |
| Newspaper | 1 | .9 |
| Cable television | 1 | .9 |
| Poster | 1 | .9 |
| Show | 1 | .9 |
| Fair | 1 | .9 |
| Exhibit | 1 | .9 |
| Church bulletin | 1 | .9 |
| Bulletin/pamphlet | 1 | .9 |
| Magazine article | 1 | .9 |
| Journal article | 1 | .9 |
| Specialty pub. article | 1 | .9 |
| Office visit | 1 | .9 |
| Institute | 1 | .9 |
| Satellite conferencing | 1 | .9 |
| Data analysis/results | 1 | .9 |
| Result demonstration | 1 | .9 |

## SUMMARY

These studies of targeted Extension audiences as well as field faculty themselves hold similar preferences for specific modes of learning. The modes named most frequently were *"doing"*, *"seeing"*, and *"discussing"*. While other learning modes were seen as less preferable, many were included when preferred combinations were identified.

By utilizing a theory based, research supported model for developing program delivery systems, the Extension educator can utilize this model for effectively including appropriate inputs (delivery methods) that provide opportunities for learners to *"do"*, *"see"*, and *"discuss"* information presented. These learning modes effectively provide the Experiential, Reinforcement, and Integrative components of a learning system. The wide array of available delivery methods offers sufficient input opportunities for each learning mode. Therefore, the Extension educator should possess knowledge of which methods meet specific learning mode preferences as well as being seen by clientele as preferred means for receiving needed information.

In selecting individual delivery methods for structuring a program delivery system, the Extension educator also needs to be aware of methods which clientele hold negative attitudes toward. Since adult learners are usually self-directed in seeking learning opportunities, the use of delivery methods that are seen as inappropriate to their needs or desires can be expected to diminish their motivation to participate in an educational program. Therefore, the effective selection of individual delivery methods for inclusion in a delivery system is both an art and science. An art in recognizing and addressing the appropriate learning context, and a science in the effective selection of delivery methods based on theory, research, and practice that delivers information in the sequence and manner desired.

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